Hospital Length of Stay vs. Relative Value Unit Generation in Trauma Surgery.

Danielle Carr
USF MCOM-LVHN Campus, danielle.carr@lvhn.org

Joseph J. Stirparo MD
Lehigh Valley Health Network, Joseph_J.Stirparo@lvhn.org

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Hospital Length of Stay vs. Relative Value Unit Generation in Trauma Surgery

Danielle Carr, Joseph Stirparo, MD

Lehigh Valley Health Network, Allentown, PA

Introduction

Healthcare cost containment and reduction continue to be a priority for physicians and hospital administrators. One of the metrics for measuring success of efforts involved with cost management has been hospital length of stay (LOS), with the assumption that decreasing hospital stay correlates with decreased associated hospital costs.

Emergent trauma cases have been associated with not only more complications and higher readmission and mortality rates, but also increased LOS. Trauma surgeons' work and reimbursement for services are determined by the generation of relative value units (RVUs). RVUs are defined by Medicaid and Medicare and are intended to account for work performed in preoperative evaluation, technical work of the operation, and postoperative care.

This project will aim to determine if any correlation exists between hospital LOS and RVU generation at our institution's trauma department over the course of the 2014 and 2015 fiscal years.

Problem Statement

Hospital length of stay has been a metric for evaluating hospital efficiency and care; however, the correlation of decreasing length of stay with relative value unit generation has not been determined.

Methodology

A literature search was performed in EBSOhost to assess current status of information available regarding relative value units (RVUs), as well as studies based on length of hospital stay. A protocol concept sheet was prepared for the IRB regulatory process. In this retrospective study, the trauma database was queried for number of trauma admitted patients and hospital length of stay during the 2014 and 2015 fiscal years. RVU totals for the same years were collected from RVU yearly reports. The total number of patients admitted to the trauma service and the average hospital length of stay per month of both years were calculated. The total RVUs generated in each month of 2014 and 2015 by the trauma department were calculated. The monthly average hospital length of stay and RVUs generated were plotted on a scatter graph for linear regression analysis and correlation calculations.

Results

For 2014, a total of 3,381 patients were admitted to the trauma service. Average length of stay for fiscal year 2014 was 5.24 days. Median LOS was 5.25 days, and LOS range was from 4.44 to 6.34 days. In 2015, 3,558 patients were admitted to the trauma service was an average LOS of 4.88 days. Median LOS was 4.88 days and the range was 4.12-5.96 days. RVU totals by month are summarized with monthly average length of stay in Figure 1 (FY 2014) and Figure 2 (FY 2015). Total RVUs and LOS for both years were plotted on a scatter diagram showing a positive correlation. Strength of correlation was determined by calculating a Pearson product coefficient of 0.113, and a linear regression analysis was performed. The r2 value was 0.0129 and slope of the best-fit line was calculated to be 0.128. These results are shown in Figure 3. Our results show a related trend between RVUs and length of hospital stay over time, as well as a weak positive correlation when considering RVU generation as a function of hospital LOS.

Figure 1. Fiscal Year 2014

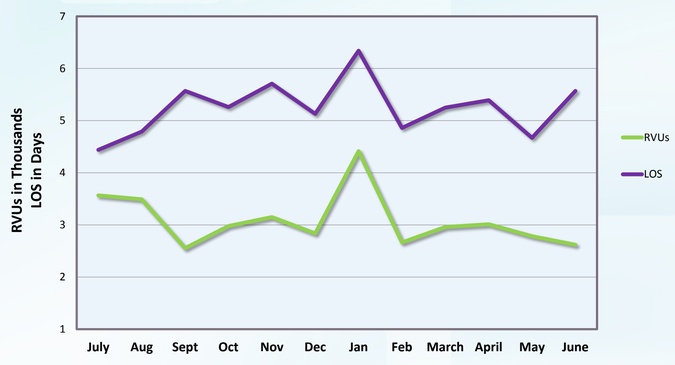


Figure 2. Fiscal Year 2015

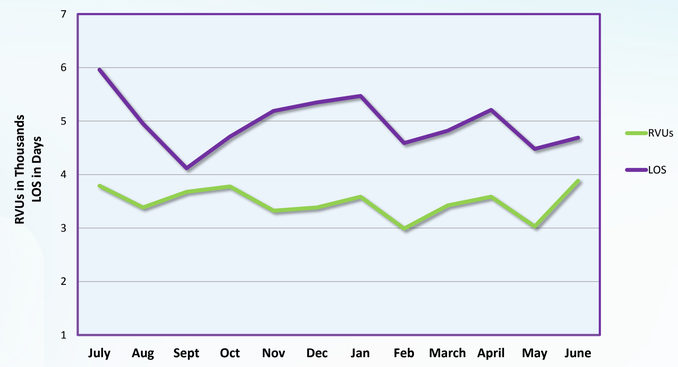
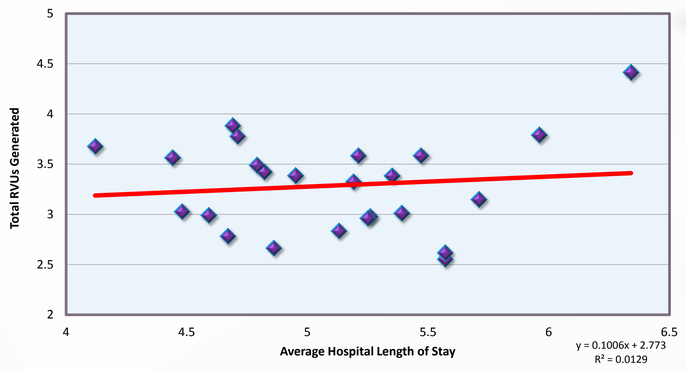


Figure 3. RVU vs. Hospital Length of Stay FY2014 and 2015



Conclusions and Future Implications

This study supports the value of investigating relationships between RVUs and LOS. Future studies should aim for more sophisticated analyses to include a wider range of variables to identify potential confounders. This information is valuable in ensuring surgical departments, as well as individual providers, have a proper productivity measure set in place.

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